

## AMENDMENTS TO THE CLAIMS

Claim 1 (Previously presented) An extrusion-free wet cleaning process for post-etch Cu-dual damascene structures, the process comprising:

- 5 providing a wafer comprising a silicon substrate and at least one post-etch Cu-dual damascene structure, the post-etch Cu-dual damascene structure having a via structure exposing a portion of a Cu wiring line electrically connected with an N<sup>+</sup> diffusion region of the silicon substrate and a trench structure formed on the via structure;
- 10 executing an oxidation step by applying a diluted H<sub>2</sub>O<sub>2</sub> solution to the wafer to slightly oxidize the surface of the exposed Cu wiring line; and washing away cupric oxide generated in the oxidation step by means of a cupric oxide cleaning solution containing diluted HF, NH<sub>4</sub>F or NH<sub>2</sub>OH having a pH of above 7.

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Claim 2 (Original) The process of claim 1 wherein the Cu wiring line electrically connected with an N<sup>+</sup> diffusion region of the silicon substrate serves as a cathode in the cupric oxide cleaning solution.

- 20 Claim 3 (Currently amended) The process of claim 1 ~~wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises further comprising~~ purging inert gas onto the wafer during the application to the wafer of the diluted H<sub>2</sub>O<sub>2</sub> solution.

- 25 Claim 4 (Currently amended) The process of claim 1 ~~wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises further comprising~~ adding a Cu corrosion inhibitor to the diluted H<sub>2</sub>O<sub>2</sub> solution.

- 30 Claim 5 (Original) The process of claim 4 wherein the Cu corrosion inhibitor comprises benzotriazole (BTA).

Claim 6 (Currently amended) The process of claim 1 ~~wherein the method of~~

~~preventing Cu reduction reactions on the Cu wiring line comprises further~~  
comprising reducing the  $\text{H}_2\text{O}_2$  concentration of the diluted  $\text{H}_2\text{O}_2$  solution to  
below 100:1 (v/v) of solvent to  $\text{H}_2\text{O}_2$ .

- 5 Claim 7 (Currently amended) The process of claim 1 ~~wherein the method of~~  
~~preventing Cu reduction reactions on the Cu wiring line comprises further~~  
comprising lowering the temperature of the diluted  $\text{H}_2\text{O}_2$  solution to below  $15^\circ\text{C}$   
during the application to the wafer of the diluted  $\text{H}_2\text{O}_2$  solution.

- 10 Claims 8-19 (Cancelled)